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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/582,790	07/05/2000	FUJIO MORI	2000-0938A	2735

7590

05/06/2002

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EXAMINER

UHLIR, NIKOLAS J

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 05/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary

Application No.

09/582,790

Applicant(s)

MORI, FUJIO

Examiner

Nikolas J. Uhler

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claim 21 is noted to contain nominal method steps. At this time restriction has not been required between the product claims 1-20 and the method claim 21 because the method claim does not recite any significant manipulative steps and is therefore considered as part of the product claims. If the method claim is amended to contain significant method steps it will be subject to restriction based on original presentation.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 14 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant case, in claim 14, the applicant requires that the pattern layer be formed on a carrier sheet, after which a substrate sheet is laminated onto the pattern side of the pattern/carrier laminate, after which the carrier layer is separated from the laminate so that the pattern layer is formed on a surface of the substrate sheet or the backing sheet. It is unclear to the examiner how the "on a surface of the backing sheet", when no application step for the backing sheet is stated. Clarification is required.

Art Unit: 1773

5. Claim 16 recites the limitation "the pattern layer" in the third line of the claim.

There is insufficient antecedent basis for this limitation in the claim. Claim 16 as amended is dependent on claim 1, and so requires a "second pattern layer" but not a "pattern layer." The examiner believes that claim 16 is intended to be dependent on claim 12, which is the first claim that requires a "first" pattern layer. Correction is required.

6. Claim 16 also requires that the substrate layer be "made from a material that is easily vaporizable and foamable." It is unclear to the examiner exactly what materials are "easily vaporizable and foamable." The phrase is not defined and suitable materials that meet this requirement are not stated by the specification or the claims. Thus, the phrase is held to be indefinite, and one with ordinary skill in the art would not be apprised of the scope of the invention.

7. Further, claim 16 requires that the carrier sheet exhibit a dimensional change rate within .6% at 90 °C. It is unclear to the examiner to what exactly the carrier sheet dimensional change rate is within .6% of. This limitation is neither defined by the claims nor the specification, and thus one with ordinary skill in the art would not be apprised of the scope of the invention. Clarification is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-21 are rejected under 35 U.S.C. 102(a) as being unpatentable over Mori et al. (JP09-300397) in view of Aleckner Jr. et al. (US4945005), further in view of Kitamura et al (JP04-075085).

10. For the purpose of this examination, the examiner has relied upon a translations of both the Mori et al. and Kitamura et al. documents to form the basis for this rejection. The translation of the Mori patent is attached to this office action. A written translation of the Kitamura patent will be provided when it is obtained. All cited references are to the translation unless otherwise noted. Further, for the purpose of this examination, the examiner has assumed that claim 16 is actually dependent on claim 12, as it requires that a second pattern layer be present between the backing sheet and the pattern layer, and claim 12, presents the first requirement of a 1st pattern layer.

11. The limitations "the method comprising: setting an in mold decorating sheet into a mold.... integrally bonded to a surface of the molding resin" in claim 1, "the manufacturing method of the in-mold decorating sheet...integrally bonded to the surface of the molding resin" in claim 2, and "formed by a method...of molding the resin" in claim 21, are product-by-process limitations and is do not appear to be further limiting in so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product

Art Unit: 1773

was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113.

12. Mori et al. teaches an insert film used to obtain molded-in-foil-decoration articles having a moiré tone (Page 1, Section 0001). Referring to figure 2 of the original Japanese, Mori et al. teaches an insert film that comprises an acrylic substrate layer 2, that has been coated with moiré pattern 3, and substratum layer 4, which is then coated with a backing layer (tinction sheet) 5, and a glue layer 8 (Page 2, sections 0014-0015, and page 4, section 0029). The acrylic substrate is typically a transparent acrylic film such as polymethylmethacrylate, and is typically 50-200 μm thick (page 2, section 0016). The substratum layer 4 has a direct impact on the hue of the moiré pattern, and is typically formed of a resin such as a polyvinyl-acetal or polyester mixed with dyes and/or pigments (page 2, section 20 and page 3, section 26). The tinction sheet 5 prevents the substratum layer from being transparent, and is typically made of a polypropylene resin mixed with pigments and/or dyes. The color of this layer is matched to the color of the moiré pattern layer 3 and the color of the substratum layer 4. The tinction sheet 5 can be a single layer or can be multiple layers (page 4, section 0032). Regarding claims 16-18, wherein the applicant requires a second pattern layer of a specific resin material (including polypropylene) formed between the backing sheet and the first pattern layer. The examiner takes the position that the pattern of the second layer could simply be a solid color. Thus, because Mori et al. teaches that the backing (tinction) layer is formed from one or more layers of polypropylene and is colored to match the moiré pattern and the substratum layer as described above, the examiner

takes the position that the limitations of claims 16-18 are necessarily met. Mori et al. further teaches that the thickness of the tintion layer is typically $\sim 150\mu\text{m}$ or more (page 5, section 38). Thus, because the acrylic layer is typically 50-200 μm thick, and the thickness of the tintion layer is typically $>150\mu\text{m}$, the thickness limitations required by claim 5 are met. Further, regarding claim 5, wherein the applicant requires that the backing sheet have a dark color falling within a specified range of the CIE1976 $L^*a^*b^*$ color system. Because the material of the backing (tintion) sheet taught by Mori et al. meets the limitations of claim 6, which is dependent on claim 5, the examiner takes the position that this color limitation is necessarily met. Regarding claim 7, wherein the applicant requires that the backing sheet be a material that prevents vaporization and foaming. Because the material used by Mori et al. for the backing (tintion) layer meets the limitations of claim 18, which lists materials that prevent vaporization and foaming, the examiner takes the position that this limitation is necessarily met. Regarding claim 1, wherein the applicant requires that the in-mold decorating sheet have a tensile load at break of >23 gf, and a tensile elongation at break $>130\%$. Lastly, Mori et al. teaches a method for making an in-mold decorated article, wherein the acrylic insertion film described above is arranged inside a metal mold, the mold is clamped, and the film is heated under vacuum to form the sheet to the side of the mold. Molding resin is injected into the mold, and the molding resin and the insertion film are unified (page 5, section 0041). Thus, the limitations of claim 21 are met.

13. Mori et al. does not teach an in old decorating sheet that exhibits a tensile load at break >23 gf, when the film is fixed between a pair of chucks and loaded at a constant

Art Unit: 1773

rate of 500mm.min under an ambient temperature between 62-94 °C. Further, Mori et al. does not teach an in mold decorating sheet that changes in properties between 40-200 °C, and exhibits tensile elongation at break greater than 130% when a 10mm section of the sheet is fixed between a pair of chucks and a 20gf load is applied at a constant rate of 500mm/min. Further, Mori et al. does not teach an in mold decorating sheet wherein a 10mm wide section of the sheet exhibits a product of Young's modulus and a cube of the thickness of the in mold sheet that is >1kgfmm, when the sheet is fixed between a pair of chucks and is loaded at a constant rate of 500mm/min at 25 °C. In addition, Mori et al. does not teach an in-mold decorating sheet wherein the decorating sheet on the side opposite the side bonded to the molding resin exhibits pencil hardness between 3B-2H. Additionally, Mori et al. does not teach an in mold decorating sheet that exhibits a difference in shrinkage factor between the substrate sheet and the backing sheet of 0-.008, wherein the substrate is an acrylic film, and the backing sheet is a polypropylene film containing 20-150 parts by weight ethylene propylene or ethylene propylene diene rubber, and 5-20 parts by weight talc. Last, Mori et al. does not teach an in mold decorating sheet that has a carrier sheet laminated to the in mold decorating film, wherein the carrier sheet is a biaxially oriented polyester or polypropylene film, and has a dimensional change rate at 90 °C within .6%, wherein the pattern layer is formed on a surface of the substrate sheet or the backing sheet opposite the carrier sheet.

14. Aleckner Jr. et al. teaches thermoplastic polymer blends for use in manufacturing molded articles via injection molding (Column 1, lines 15-25). In particular, Aleckner Jr.

Art Unit: 1773

et al. teaches thermoplastic composition comprising a blend of 2-25 weight percent of a copolymer of ethylenically unsaturated carboxylic acid and ethylene (component a), 3-50 weight percent of a copolymer derived from ethylene and a C₃-C₁₂ alpha olefin (component b), 0-55% by weight of polypropylene or polypropylene copolymerized with 20 mole percent C₂-C₁₂ alpha olefin (component c), 5-50 weight percent of an inorganic filler (component d), and 10-35 weight percent of homoethylene or a copolymer of ethylene and a C₃-C₁₂ alpha olefin (component e) (Column 3, lines 1-32). Specifically, component a is a copolymer such as ethylene-acrylic or ethylene-methacrylic copolymer, and is preferably present in an amount between 5-20% by weight (column 5, lines 5-52). Component b is typically an elastomer such as ethylene-propylene or ethylene-propylene-diene, and is soluble in component c. Ethylene-propylene rubbers are preferred because of their cost/performance ratio (column 5, line 64-column 6, line 5). Component c is a polypropylene or copolymer of propylene. The amount of component c used depends on the temperature of the process used to process the composition. Higher amounts of component c result in higher usable process temperatures (column 6, lines 31-57). Component d is preferably talc, which has been shown to impart high flexural modulus to injection-molded articles (column 7, lines 1-10). Component e is used to disperse the rubber and ethylene copolymers in the blend. This polymer blend has been shown to exhibit high impact and tensile strength, and can be used in injection molding processes (column 4, lines 34-47).

15. Kitamura et al. teaches a transfer foil comprising a base material and a transfer layer (abstract). The base material is a biaxially oriented high-density polyethylene or

Art Unit: 1773

polypropylene film that has been corona discharge or ozone processed. The base material is easily peeled from the transfer layer after the material has been transferred to a substrate. The base material is typically between 1-200 μ m thick and exhibits a tensile strength at break of 100kg/mm² and an elongation at break of 200%. Using this base material allows the transfer layer to be transferred to a substrate without foil breakage when the transfer layer is applied at the time an article is being molded.

(abstract and last paragraph of the upper left hand column of page 2).

16. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the thermoplastic polymer blend taught by Aleckner Jr et al. as the backing (tinction) sheet of Mori et al. In addition, it would have been obvious to one with ordinary skill in the art at the time the invention was made to laminate the base material sheet taught by Kitamura et al. to the base material taught by Mori et al.

17. One would have been motivated to modify the Mori et al. patent with the Aleckner Jr. et al. polymer blend due to the teaching in Aleckner Jr et al. that a blend of polypropylene, ethylene-propylene-rubber, talc, and ethylene copolymers results in a material that exhibits high impact and tensile strength when used in injection molding processes. One would have been motivated to modify the Mori et al. patent with the Kitamura et al. base sheet due to the teaching in Kitamura that a transfer layer can be transferred without foil breakage when a substrate layer of biaxially oriented polypropylene is used as a base sheet.

18. Regarding claims 1 and 2, wherein the applicant requires a decorating sheet that exhibits a tensile load at break >23 gf, and tensile elongation at break greater than 130% under a given set of conditions. The examiner takes the position that because the combination of the Mori et al., Aleckner Jr. et al., and Kitamura et al. patents result in a transfer material that meets all of the physical and material requirements of claims 4-21, the properties required by claims 1 and 2 are necessarily met. Regarding claim 3, wherein the applicant requires that the in-mold decorating sheet exhibits pencil hardness between 3B-2H. The combination of the Mori et al., Aleckner Jr. et al., and Kitamura et al. patents results in a material that matches all of the material and physical limitations required by claims 4-21. Thus, the examiner takes the position that this limitation is necessarily met. Regarding claim 8, wherein the applicant requires a difference in shrinkage factor between the substrate sheet and the backing sheet between 0-.008. The combination of the Mori et al. and Aleckner Jr et al. patents results in a material that meets all of the limitations of claims 9-11. These claims are dependent on claim 8. Thus, the limitations of claim 8 are necessarily met. Regarding claim 13, wherein the applicant requires a carrier sheet having a dimensional change rate within .6% at 90 °C. The combination of the Mori et al. and Kitamura et al. patents results in a material that meets all of the limitations of claims 15. Because claim 15 is dependent on claim 12 the examiner takes the position that the limitations of claim 12 are necessarily met.

Conclusion

Art Unit: 1773

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 703-305-

0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

nju

nju

April 30, 2002

Paul Thibodeau

Paul Thibodeau
Supervisory Patent Examiner
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